

# Hard Facts for Health Planning

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THE Public Health Conference on Records and Statistics is a study program of the Public Health Service administered by the National Center for Health Statistics (NCHS) to develop improved techniques and concepts applicable to vital records and public health statistics. The present program is conducted largely through biennial meetings and small interbiennial study groups. It works in liaison with the American Association for Vital Records and Public Health Statistics, and maintains contacts with agencies and persons interested in improving the country's health statistics.

The theme of the 12th national meeting, held in Washington, D.C., on June 17-21, 1968, was "Hard Facts for Health Planning: Data Uses and Needs in Comprehensive Health Statistics." While much discussion centered on data needs of the Partnership for Health Act (Public Law 89-749), conferees often referred to the statistical implications of the other health-related enactments of recent Congresses. Prominent in deliberations, also, was a concern with the country's current health status and specific and general health problems that have prompted passage of this legislation and created new data needs.

This paper summarizes topics discussed recurrently at the meeting, indicating current informed judgment concerning relationships between health data and planning. A record of meetings and participants is reported in "The Registrar and Statistician," a monthly NCHS report, while the full conference "Proceedings" will appear in a few months.

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The country's new awareness of the need for more, better, and somewhat different data for health planning already has altered the character of the conference. Excluding NCHS personnel, conferees numbered 426 in 1968, as compared with 334 in 1966 and 312 in 1964. More than 30 comprehensive health and 30 mental health planners participated, as compared with none previously. The Federal contingent also increased, with roughly equal additions from the regional offices of the Public Health Service, other organizations in the Department of Health, Education, and Welfare, and organizations from other departments. Representation of local health agencies and private health organizations hardly changed, while attendance from universities fell off.

These figures suggest that equipping for the new needs and opportunities in public health is well underway at the Federal level and has started at the State level, but has hardly begun at local governmental levels or the private sector. What changes will take place in the country's health institutions, including the conference, if local and private agencies identify functions they can perform within the setting of recent legislation? What would happen to our health effort if they wait to develop useful functions? After all, health must not only be delivered but achieved at local levels, and private health expenditures outweigh public expenditures about three to one.

## Conference Structure

The 1968 conference centered around discussion groups meeting under dual leadership supplemented by dual rapporteurs. Each participant was assigned to one of 15 such groups, which analyzed measures of health and health hazards, measures of health service use, statis-

tics on health resources, and, for each participant, either basic demographic data or data systems in terms of outlines distributed in advance. The rapporteurs prepared brief summaries of each meeting for three group leaders who reported independently on the five topics to all conference participants.

The first general session was held to stimulate upcoming group discussions with papers on "what the people expect" and "what the planners need." The theme of the second general session was "strengthening State and local statistical resources for comprehensive health services." The third general session considered reports from discussion groups. At the fourth general session steps already taken in Michigan, California, and New England toward getting the kinds of information needed for comprehensive health planning were described, and the accomplishments of the conference were summarized. At a concluding luncheon meeting, participants considered how facts can help the country move from where it now is in its health effort to where it wants to be.

During the conference mental health planners held a special meeting, seven study groups reported on their activities over the biennium, and a special meeting was held to discuss problems being handled by large-capacity data systems.

Kinds of statistics needed for comprehensive health planning, methodologies needed to improve health statistics, organization of governmental health statistics operations, and general problems in transforming the country's health needs first into demands and then into accomplishments were repeatedly considered by the conferees.

### **Types of Statistics Needed**

*By producers.* Producers of statistics, being wholesalers, must stock a broader array of data than any individual user will ever need. Since a customer may want only a suit, and not an entire bolt of cloth, the statistics producer often needs to tailor data to specific specifications. If the needs of comprehensive health planning are to be met, the producer must provide the following to meet the particular needs of consumers.

1. Fuller information concerning the broad subdivisions of vital statistics: births, deaths, fetal deaths, marriages, divorces. In addition to

the familiar age, sex, color, age of mother, cause of death, and place of occurrence, data by many new rubrics, including specific race, special age-group distributions, multiple causes of death, economic and educational status, and categories yielding family planning information, should be made regularly available.

2. Additional demographic information, including migration data and other measures permitting population estimates and projections down to local areas.

3. Numerous measures of health, including at least morbidity, disability, impairments, and possibly discomfort; of health hazards, including results of long low-level environmental exposures; of health resources and services, including data relevant even to population sectors; and of health attitudes and beliefs.

4. Data from many sources, including the private sector, expressed compatibly when feasible.

5. Unlimited health-related information on such topics as socioeconomic, geographic (as by micro-areas), climatic, and prison population.

6. Data classified (or classifiable) by political, superpolitical, and subpolitical areas, down to city blocks and sides of streets.

7. Cross-classifications, either already made or promptly producible, between these and other data groupings.

8. A statistical program that can keep available data current and anticipate emerging needs.

9. A data system adequate to the magnitude and complexity of information that must be handled.

10. Leaders capable of controlling so complicated a statistical enterprise and assured of the social recognition needed to support their efforts.

11. An adequate supply of trained personnel, necessitating increased Federal support of statistical training programs.

*By consumers.* Potential customers of the health statistician are chiefly program administrators, planners, legislators, high level executives, journalists, researchers, businessmen, and the general public. None of these groups will require all the material the health statistician should collect nor, typically, can many information needs be satisfactorily met by already packaged data. At the least, some marking or refer-

encing of such material will be advisable except when an extremely simple need is being satisfied. At different levels, therefore, the health statistician must be able to perform at least two other functions. He must interpret the data he gathers, and he must generate statistics that are adapted to problem solving, which will necessitate basic improvements in our data systems.

Interpretation rests upon, but is different than, statistical analysis. The difference is illustrated by the following excerpt—"The difference between these two values is statistically significant, but actually unimportant." Because he is best acquainted with his data and their limitations, the statistician has a special responsibility to tell nonstatisticians what they mean. One conference speaker cited an infant mortality study by county "as thick as the Washington telephone directory," which contained "virtually no mention of what the implications of the data are for our efforts to decrease infant deaths."

Many conferees felt that health statistics is presently an underdeveloped art. Much health information currently is gathered from legal documents recording vital events or from information collected in the course of program operations. While a great deal of information is available, much of it bears only on routine health problems at best.

One State health planner, speaking on the statistician's responsibility both to interpret his data and improve his data-gathering system, asked, "Are you asking the health planner, as you have asked other people in the past, to justify a data collection system that you have grown personally fond of, to make sense out of data that you can neither justify nor analyze, or are you asking the health planner to help you patch up and repair a data system, the cost of the repair of which exceeds the value received, and perhaps it is time to buy a new car?"

"The health planner at this time is neither willing, nor should he take on this huge load of data represented by the symbol of infinity that you have available. The health planner at this time has to step back and get far enough away from these data to see some of the problems."

### **Methodological Proposals**

The conference "Proceedings" will show that many proposals for improving health statistics

arose during the meetings, including a major organizational recommendation for State centers for health statistics. The "Proceedings" will not record the informal discussions outside the meetings, many of which concerned the State center proposal. Other methodological proposals for improving health statistics will be summarized in this section.

*Improving the vital statistics system.* A few critics found our vital statistics system stiff and disorganized. It consists of 56 independent units (the 50 States, District of Columbia, independent cities of New York, New Orleans, and Baltimore, and Puerto Rico and the Virgin Islands), which are united only to the degree that they are willing and able to work together. This is surprisingly often, although the process usually takes time, patience, ingenuity, and compromise. None of the critics suggested a substitute for the system which has produced annual statistics on births and deaths for increasing portions of the country since 1900 and for the entire country since 1933. The marriage and divorce registration areas are not complete even today. The country's vital statistics, despite imperfections, furnish indispensable baseline data for health, demographic, and socioeconomic understandings.

The vital statistics system is vexed by a multitude of usually small but nevertheless confusing differences in reporting forms, procedures, definitions, and the like, often hallowed by custom or embedded in legislation. Conferees reviewed with satisfaction the success of the six New England States, assisted by NCHS, in developing a uniform system for coding and tabulating vital statistics. The system is operational for 1968 births and deaths, and will be applied to 1969 fetal deaths, marriages, and divorces.

During the 1966-68 biennium, conference study groups worked on improving fetal death and birth registration, settling the record linkage problem (including maintaining confidentiality of personal information on vital records), developing research topics of interest to vital registration and statistical executives, developing model State vital statistics regulations, defining relationships between vital and health statistics, and relating the 1970 census to comprehensive health planning and evaluation.

Documentation bearing on these studies is available from NCHS.

*Comparability in health statistics.* Conferees frequently referred to the need for comparable statistics throughout all health fields, lest confusion multiply until the situation is as unbearable as it was for users of nuts, bolts, and screws before they were standardized. The conference received a proposal for two basic tables covering health manpower requirements and supply, prepared by the Public Health Service's Bureau of Health Manpower and considered the activities of the Service's Community Profile Data Center. These profiles are quantitative community descriptions conforming to standardized definitions, although the specific items in a profile may vary according to community needs. A community is defined as "a State, a city, a census tract, or a 'trade area' crossing geopolitical bounds."

Of course these agencies, and others like NCHS which are interested in greater comparability, know that technical advice and assistance constitute a primary means of developing uniform base data.

*Adapting existing statistics.* Even existing data drawn from vital statistics, census information, and other sources often can be applied to demonstrate health needs or decide between program alternatives. An example is NCHS synthetic State estimates, as those of disability, derived from a sample representative of the entire country and modified by regional adjustment factors, and then adjusted to fit individual States in terms of seven key health variables—color, sex, age group, residence, family income, family size, industry of head of family. While the results are not probability estimates, they may prove useful as provisional approximations until better measures become available.

Another example is the suggestion of the degree to which interpersonal environmental problems might arise if mental patients were returned to the community by studying the distribution of adults by sex and marital status according to type of living arrangement. Living arrangement is classified by the person living in a family as the head of the family, living in a family with some other family member as family head, living in group quarters, living in a household with nonrelatives, or living alone.

Age distributions also can be studied.

*Using management information models.* Since planners participated actively in the discussions, there were several proposals that health statistics be developed along the lines of industrial management information systems rather than after the manner of a university department primarily concerned with advancing scientific knowledge. This proposal was never thoroughly expounded. It appears that such systems are goal-oriented, but emphasize specific goals rather than a general goal like "health." They emphasize input-output techniques, treating health as a commodity, and couch their proposals in money terms as a common measure of costs and benefits. Nevertheless, such systems may permit value judgments that influence the calculations, as in the contrast between "efficiency" and "effectiveness."

*Measuring preventive aspects of services.* The proposal to measure preventive aspects of health services differs from the industrial management approach in that it suggests relating actual health services to actual health outcomes, which can be very different from inputs and outputs and often are less appropriately expressed in money terms. But the proposal differs also from old-fashioned service statistics, which concentrate on visits made, admissions, laboratory tests performed, and so on.

There may be merit in finding out who performed the functions, since professionals may be doing things that might be assigned to paramedical personnel. There may also be merit in allocating outcomes to their places of occurrence, since better health results, possibly at less cost, might ensue in another setting.

A positive health goal, like prevention of some diseases, sometimes can be achieved at little cost and with little effort. Others living in the community of a person who underwent the prevention treatment can share its benefits, whether or not they themselves underwent treatment. In fact, the broad aim of health activity is to move the population toward "nondisease."

Put in economic terms, the dollars allocated to health services are in great part investment rather than consumption dollars. Progress toward outcome measures can be reflected statistically in terms of intermediate stages such as "arrested" or "ameliorated" before achieving

“cure” or “coping.” Such measures would make it possible to determine both flow and quantity of resources needed to move a person through an ordered sequence to the outcome of health related to utilization.

*Social and behavioral science methods.* Although attitudes and beliefs frequently determine the success of public health efforts, this theme was only mentioned. It was indicated, however, that legislators are more likely to become interested in comprehensive health programs because they may save money, not because they are comprehensive, and that consumers on the planning councils are bored by long statistical presentations that are meaningless to them. It appears that public health workers have a lot to learn about techniques of persuasion. The health campaigns in support of fluoridation and against cigarette smoking contrast sharply with the campaign against poliomyelitis.

#### **State Centers for Health Statistics**

Establishing State centers for health statistics, the only concrete organizational proposal given thorough consideration by the conference, was shaped definitely in an NCHS position paper (Conf. Doc. 626) distributed in advance of the meeting. At both opening and closing general sessions of the 11th national conference meeting, held in June 1966, Dr. Forrest E. Linder, then director of NCHS, mentioned his disappointment that not a single State center for health statistics had been established. Without further explaining what he meant, he stated that the time for this idea is here, but what is now needed is some leadership, somebody to crystallize the concept and draw up a blueprint that can be worked for and achieved.

At that time, Dr. Linder expressed the view that the idea should be developed by people in State agencies. Since then Michigan, California, and Pennsylvania have taken steps in varying degrees and directions toward establishing State centers. While this is good progress, it is not enough. Data needs for the comprehensive health effort are accelerating. While it is recognized that States must vary greatly in their programs, the variation should be according to need and based on conscious choices rather than happenstance. The need should be according to

the health situation, rather than availability of resources. Further, for good planning and evaluation a minimum of data uniformity is indispensable; this uniformity must be achieved by concerted action.

Thus, while Conf. Doc. 626 left open many aspects of the State center proposal, it stated specifically that State centers would conduct statistical activities and distribute statistics with complete impartiality, not merely assemble data worked up by other agencies but develop needed statistical information meeting accepted standards of comparability, be equipped to satisfy a wide range of data needs, carry on statistical research, be staffed to offer statistical consultation and advice, and strongly obligate themselves to coordinating health statistics.

The primary function of the State center would be to provide the focal point for a coordinated statistical support service to the State's health services and health protection system. It might begin by analyzing, unifying, and perhaps extending certain statistics already available to the State. This could include base population, vital, notifiable disease, public mental hospital admission and discharge, public assistance recipient, and approved water supplies and sanitary waste disposal statistics generated largely from official activities required by law. The State center also might begin by seeking to extend the usefulness of other health statistics, such as those on health manpower and facilities resources.

The NCHS document did not insist on locating the State center in the State health department. In some States there might be a nuclear statistical organization there or elsewhere around which it might be built. It was held, however, that the State center should not be attached to the planning organization, lest it be charged with adapting its output to planning decisions. It should participate in planning statistical features of the activities of operating programs, thereby helping to guard them against the danger of being too narrowly conceived.

In the conference discussions of the State center proposal, there was unanimity on a few matters. Among these were the difficulties of coordination; need for liaison between health statisticians and planners; need to insure that

the State center not be isolated from operating programs; and special difficulties of handling small areas, dealing with environmental hazards, incorporating the private sector, and developing data systems adequate to the task. Not neglected was the need to coordinate Federal health statistics programs, which presently confuse even informed Federal health personnel.

But the primary concern was getting money to start State centers, even though they might ultimately pay for themselves in terms of improved health. It was suggested that regional centers might be established to meet the needs of less populous and less prosperous States. The New England States are considering this possibility.

The Governing Council of the Southern Branch of the American Public Health Association passed the following resolution in May 1968.

Due to the comprehensive data requirements of new and expanded health programs and because of the present and future impact on the States of statistical reporting, design, analysis, and evaluation, as a result of State activities and Federal programs such as Comprehensive Health Planning, Regional Medical Programs, Medicare, Medicaid, and others,

BE IT RESOLVED that the Governing Council of the Southern Branch, APHA, acknowledges that the Southern Branch, APHA, endorses and supports the implementation of State Centers for Health Statistics as promulgated in documents prepared by the NCHS, PHS, DHEW.

The Executive Committee of the American Association for Vital Records and Public Health Statistics, in its capacity as an advisory body to the Association of State and Territorial Health Officers, requested that the association place the State center concept on the agenda of its 1968 annual meeting. The committee also asked NCHS to request the Surgeon General to make this matter an agenda topic in his 1968 conference with the association.

At its July 1968 meeting, the Standing Committee of the Public Health Conference on Records and Statistics passed the following recommendation.

That this Committee urges the Surgeon General of the Public Health Service and the Health Services and Mental Health Administration to implement through mechanisms of grants or contracts as rapidly as possible the concept of the Model State Centers for Health Statistics in collaboration with such other

elements as they see fit, including the National Center for Health Services Research and Development, the Regional Medical Programs, and the Office of Comprehensive Health Planning.

### **Transforming Situations Into Programs**

One surprising feature accompanying social legislation of the last few years is the large amount of social-process analysis that has been engendered and largely incorporated into the enactments. A social action philosophy is taking shape in the very midst of action, and that philosophy is being not only applied but stated by operators—by doers rather than thinkers.

This action philosophy is so oriented to human situations that it usually takes human participation for granted at every point. For example, a trained or untrained participant or an outsider in the field of health finds something wrong in an existing situation. He tries to identify a way to correct the situation. If he reaches a sufficiently attractive answer, demands for changes may arise from those involved or from elsewhere. We now have a health problem. Plans may then be developed to deal with the problem, while at the same time efforts may be made to get the plans accepted. If things work out, we have a program and a basis in social acceptance for making it workable. Both the program and the acceptance, however, may change after evaluation.

Four functions or dimensions to social planning and social action are transforming situations into problems, transforming problems into plans, making plans workable by transforming them into programs, and reaching a public decision as to whether the problem has been handled.

In massive social situations, and most obviously in a democracy, no function is truncated. The first level is the statistical or problem identifying aspect; the second is planning; the third is effecting the program; the fourth is mediation between politically motivated groups and the general or affected public.

All these functions are exercised simultaneously and may occasionally be performed by the same person. In particular situations any function may be expanded or reduced. Present, past, future, and total time are integrated into the social process, with total time as the locus of public decision making.

Here the conference took a philosophic turn. Speaking in other but nevertheless consistent language, one conferee said, "In a sense he [the planner] is trying to change a need that you have identified by statistical means into a demand, something that is perceived as a need by others, by consumers of health services, providers, legislators, citizens' committees and councils and all people who can see that a demand is met in the framework of a political process." These ideas are extensively illustrated and expanded in the verbatim record. At another point, a conferee spoke of the "political filter through which data and planning must pass before they are translated in action." Still another conferee, in asking that health statistics be "relevant," illustrated the point as applied to the political framework, current state of health programs, manpower prospects, funding opportunities, multiple decision centers in the system, and people.

Study of Public Law 89-749 shows that the structure of this Partnership for Health Act is consistent with the social action philosophy characteristic of the conference. This is apparent in its recognition that health can be achieved only in the localities where people live; the requirement that consumers make up a majority of the membership of State health planning councils; the effort to devolve planning responsibility to State levels; the provision for interchanges of health personnel between government levels; and the willingness to underwrite comprehensive health, which will prove feasible only if social self-discipline is exercised in specifying what is included. Further, regulations interpreting the act and numerous statements from Public Health Service officials suggest that the sense of the act has been reasonably well understood by those who must administer it at the Federal level.

#### **Immediate and Future Needs**

The initial impetus and surveillance exercised to date unquestionably have been Federal. Budget conditions and political decisions permitting, there will be a considerable influx of Federal funds. But the chief responsibility for planning rests on the States, and the point of application of the efforts is in local areas. Will

the States plan? Will the Federal Government let them? Will power and opportunities be devolved to local agencies and private health efforts, or will States treat them as they claim they are treated by the Federal Government? Can the localities respond?

The 1960 census identified more than 3,000 counties and similarly classified areas, of which 62 percent had populations of less than 25,000, including 27 percent with populations less than 10,000. The country had more than 6,000 urban areas, of which more than 4,000 had populations of less than 10,000. There were nearly 14,000 rural areas, with about 30 percent of the country's population. How will these areas be organized by health planning? How will they carry out their plans? How will they be helped in their efforts? It cannot be doubted that they will need help.

Probably the problems inherent in Federal-State-local relations can be solved only by planning. It is helpful that so many have accepted the concept of planning in relation to the country's health. During the conference, not a single voice was raised in favor of letting nature take its course.

Until recently the emphasis in comprehensive health planning was on the general significance of the new approach and on establishing the organizational machinery needed to satisfy the act and put it into operation. Each State had to determine what State agency would administer its health planning agency, what, within the law, would be the character and composition of the State health planning council, what policies and procedures would be followed for expending funds under the plan, how the State would report on its activities, and so forth. The Office of Comprehensive Health Planning also was largely concerned with establishing organizational machinery and setting up guidelines and regulations.

Attention in the States is now turning to the details of planning and in the Public Health Service to the details of judging plans that are being submitted. This will require more dependence on statistical data than during the previous period at a time when the statistical effort concerning exact local data is hardly beginning to get organized. For judging details of plans and for later evaluating their results, rather

rough and ready statistical expedients will often have to be resorted to for a while.

Actually, then, there are two data problems—to meet immediate needs as well as possible and to lay plans for meeting more severe remote needs. The immediate problem is how to deal with these committees, but that is not the end. We have to prepare now to meet the needs of 5–10 years from now for information on which sound decisions can be based. As the planning groups get more sophisticated, they will want to be sure that statisticians can look behind their data and see what they mean.

### Summary

The Public Health Conference on Records and Statistics, a study program administered by the National Center for Health Statistics, held its 12th national biennial meeting in June 1968 to consider data uses and needs in comprehensive health planning. The conference was organized around discussion group meetings on measures of health and health hazards, measures of health service use, statistics on health resources, basic demographic data, and data systems.

Among the topics considered were the kinds of statistics needed for comprehensive health planning, methodologies to improve the country's health statistics, ways to organize governmental health statistics operations, and general problems in transforming the country's health needs first into demands and then into accomplishments.

The chief organizational proposal brought before the conference was that State (including regional) centers for health statistics be established to satisfy needs for health statistics not now being met and to coordinate and give focus to the large quantities of data already available.

A social action philosophy centering around doing rather than explaining was discernible in the discussions, as in the Comprehensive Health Planning Act itself. This philosophy holds that concrete social activity occurs when ongoing situations are transformed into problems, problems into plans, plans into programs, and finally, when programs receive social evaluations. Key persons involved are statisticians, planners, program operators, and politically motivated people, who mediate between technically motivated groups and the general or affected public.

## Data Recording and Retrieval System for Diagnostic Radiology

An immediate data recording and retrieval system applicable to diagnostic radiology, developed at Johns Hopkins University in cooperation with the National Center for Radiological Health, Public Health Service, has been successfully tested.

The system can lead to a reduction of unnecessary exposure of patients to diagnostic X-rays while providing an improved diagnostic X-ray information reporting procedure. It also permits immediate recording of X-ray diagnoses, making the information available to all involved. While there are similar systems, it is felt that this system is an advance in application of the techniques and in evaluation of radiation exposure.

The program uses a dictionary of pathological and anatomical terms which has been programmed into a computer system. A report of

the findings in a case is produced immediately and simultaneously stored as information in a coded format for future retrieval.

The system is expected to increase operational efficiency by reducing the time between interpretation of X-ray impressions and production of a formal report for attending physicians. It also should reduce the number of unproductive X-ray examinations that are performed because of inadequate information retrieval and lack of communication within large hospitals.

Additionally, in the application of such a system in a selected sample of medical facilities throughout the country, it will be possible to produce current information on X-ray practice and trends which are essential to nationwide evaluation of medical radiation exposure.